

Appl. No. 09/844,345  
Amdt. Dated July 21, 2004  
Reply to Office action of June 18, 2004

### **REMARKS/ARGUMENTS**

Claims 1-38 are pending in the present application.

This Amendment is in response to the Office Action mailed June 18, 2004. In the Office Action, the Examiner objected to the specification, rejected claims 1-14 under 35 U.S.C. §101; claims 13, 27, 37 under 35 U.S.C. §112; and claims 1-38 under 35 U.S.C. §102(e). Applicant has amended claims 13, 27 and 37. Reconsideration in light of the amendments and remarks made herein is respectfully requested.

#### ***Specification***

1. The Examiner objected to the specification because a brief summary is missing. The Office Action requested that Applicant add a "Summary of the Invention" description to the application. However, Applicant would like to kindly point out that both the M.P.E.P. and 37 C.F.R. §1.73 do not require the presence of a "Summary of the Invention" in a patent application. They merely indicate where in the application the "Summary of the Invention" should be placed if Applicant were to elect to include one.

In particular, 37 C.F.R. §1.73 only states that "[a] brief summary of the invention ... should precede the detailed description." 37 CFR §1.73 does not state "must" or "shall." Accordingly, Applicant has elected not to include a "Summary of the Invention" as this is within the discretion of Applicant.

#### ***Rejection Under 35 U.S.C. § 112***

In the Office Action, the Examiner rejected claims 13, 27 and 37 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant has amended claims 13, 27 and 37 to correct the minor informalities.

Therefore, Applicant respectfully requests the rejection under 35 U.S.C. §112 be withdrawn.

Appl. No. 09/844,345

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***Rejection Under 35 U.S.C. § 101***

1. In the Office Action, the Examiner rejected claims 1-14 under 35 U.S.C. §101 as non-statutory because the claims represent functional descriptive material that is not capable of producing a useful result, and hence represent only abstract ideas (Office Action, page 4, paragraph 7). The Examiner states that [t]he claims merely recite a "method" that is disembodied arrangement so as to be called a "computer program" or compilation of facts, information, or data *per se*, without creating any functional interrelationship, either as part of the stored data or as part of the computing processes performed by the computer ("acts") or computer readable medium so as to enable the computer to perform the claimed steps of pruning local graphs as recited. Applicant respectfully disagrees.

A claimed invention is statutory when it produces a "useful, concrete and tangible result". State Street Bank & Trust Co. v. Signature Financial Group, 149 F.3d at 1374-75, 47 USPQ2d at 1602 (Fed. Cir. 1998). Here, the claimed invention is a technique to prune local graphs in an inter-procedural analysis solver. It is useful because it provides an efficient way to reduce disk storage requirements tangible and improve access time during compilation. The result is concrete and because it is related to local graphs representing local problems, compilable components in a software program, edges and vertices, transfer function, values, lattice and a partial ordering. These elements are not abstract idea or merely mathematical formula because they can be manipulated with physical means such as by a computer readable medium.

Functional descriptive material consists of data structures and computer programs which impart functionality when employed as a computer program. Non-functional descriptive material includes but is not limited to music, literary works and a compilation or mere arrangement of data. MPEP 2106. Both types of descriptive materials are non-statutory when claimed as descriptive material *per se*. In re Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759 (Fed. Cir. 1994). Applicant contends that the claimed invention is NOT directed to a descriptive material (functional or non-functional). Claims 1-14, as recited, involves an act of pruning local graphs. This act is in essence a transformation. It is neither a data structure nor an arrangement of medium.

A process is also statutory if it is limited to a practical application of the abstract idea or mathematical algorithm in the technological arts. In re Alappat, 33 F.3d at 1543, 31 USPQ 2d at

Appl. No. 09/844,345  
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1555-57 (Fed. Cir. 1994). A [statutory process] is an act, or a series of acts, performed upon the subject matter to be transformed and reduced to a different state or thing. Diamond v. Diehr, 450 U.S. at 183-84, 209 USPQ at 6 (1981). Here, the process of pruning the local graphs has a practical application to reduce disk storage requirement and/or improve access time during compilation. It is an act or part of a series of acts to perform upon the local graphs to be transformed and reduced (e.g., shrinking) to a different graph.

Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §101 be withdrawn.

***Rejection Under 35 U.S.C. § 102***

1. In the Office Action, the Examiner rejected claims 1-38 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,077,313 issued to Ruf ("Ruf"). Applicant respectfully traverses the rejection and contends that the Examiner has not met the burden of establishing a prima facie case of anticipation. As the Examiner is aware to anticipate a claim, the reference must teach every element of a the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Vergegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989).

Ruf discloses a type partitioned dataflow analyses. Type partitional dataflow analysis performs a dataflow analysis of a program by partitioning the dataflow analysis into phases (Ruf, col. 6, lines 61-65). The partitioning is performed based on a dependence relation over types representing run-time. A dependence analysis determines the dependence relation among types of the corrupted type relation (Ruf, col. 7, lines 20-22). Dependence analysis represents the dependence relation in the form of a dependence graphs (Ruf, col. 9, lines 39-41). Partitioning algorithm module collapses each strongly-connected component of dependence graph into a single node (Ruf, col. 9, lines 66-67; col. 10, line 1). The resulting dependence graph is a directed acyclic graph (DAG) corresponding to a partial ordering of type representatives (Ruf, col. 10, lines 8-9).

Appl. No. 09/844,345  
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Ruf does not disclose, either expressly or inherently, (1) pruning, (2) local graphs representing local problems that correspond to separately compilable components, and (3) values of each of the local graphs form a lattice under a partial ordering.

First, Ruf merely discloses transforming a dependence relation by merging depending types in the dependence relation into a single type. Transforming and/or merging is not the same as pruning. Pruning is in essence reducing whereas merging is combining. The two processes are different. Second, Ruf does not disclose local graphs representing local problems corresponding to separately compilable components. Ruf merely discloses a dependence graph. Each type in the dependence relation is represented by a vertex or node in the graph (Ruf, col. 9, lines 42-43). A directed edge represents the dependence between each pair of types (Ruf, col. 9, lines 43-45). Since the vertex/node represents a type, it does not correspond to separately compilable components in a software program. Third, Ruf does not disclose values of the local graph form a lattice under a partial ordering. Ruf merely discloses a directed acyclic graph (DAG) which represents a collapsed dependence graph (Ruf, col. 10, lines 6-9).

Therefore, Applicant believes that independent claims 1, 15, 29 and their respective dependent claims are distinguishable over the cited prior art references. Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §102(e) be withdrawn.

Appl. No. 09/844,345

Amdt. Dated July 21, 2004

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**Conclusion**

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Dated: July 21, 2004

By

  
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